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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/951,635	10/17/1997	MANABU KATO	35.C11250CON	1809

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EXAMINER

PHAN, JAMES

ART UNIT PAPER NUMBER

2872

DATE MAILED: 08/13/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

08/951,635

Applicant(s)

KATO, MANABU

Examiner

James Phan

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 May 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 61-72 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 61, 62 and 69-72 is/are rejected.
- 7) ☒ Claim(s) 63-68 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 39.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 61, 62, 69-70 are rejected under 35 U.S.C. 102(a) as being anticipated by Yamazaki (Figs. 1 and 5 and column 8, lines 5-21).

Yamazaki discloses a scanning optical system which comprises a light source (11), a cylindrical lens (3), a deflector (4), and an imaging lens having a first optical element and a second optical element (Fig. 1). In column 8, Yamazaki discloses that a plurality of non-symmetrical surfaces with respect to the optical axis may be included/utilized (lines 18-21), and that the curvature of each non-symmetrical surface in the auxiliary direction varies from the center to the periphery along the main scanning direction (Fig. 5 and column 8, lines 22-24). Yamazaki further discloses that the variation of curvature is defined by the following expression:

$$rh(\pm) = r_o + (1+k(\pm) * R_p * \alpha / n) * R * [1 - \cos\{\sin^{-1}(h/R)\}];$$

thus, the curvatures of the plurality of non-symmetrical surfaces in the sub-scanning (auxiliary) direction vary independently of the curvatures in the main scanning direction.

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In re claims 62 and 69 Yamazaki discloses  $k(+) - k(-) > 0.005M$ , where  $k(+)$  represents a coefficient on the "+" image height side,  $k(-)$  represents a coefficient on the "-" image height side, and M represents a lateral magnification in the sub-scanning ( auxiliary/ secondary) scanning direction of the scanning system. From the above expression, it is clear that the magnification M of the scanning system constant over the effective scanning region.

In re claim 70 a point of inflection would be at the intersection of an optical axis and the lens surface.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 71-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki.

Yamazaki discloses all the claimed features as discussed on page 2 except for a light source including a plurality of light-emitting portions. However, the use of a light source including a plurality of light-emitting portions is conventional in the scanning art for speeding up a scanning operation. Thus, it would have been obvious to one of ordinary skill in the art to replace the light source disclosed in Yamazaki with a light source device having a plurality of light-

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emitting portions for producing a multiple scanning lines in each scan so as to reduce the scanning operation time.

In re claim 72 see column 4, lines 1-3.

***Allowable Subject Matter***

5. Claims 63-68 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: none of the cited references teaches or fairly suggests a scanning optical system defined by each of claims 63-68.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Phan whose telephone number is (703) 308-4810. The examiner can normally be reached on M-F. The fax phone number for this Group is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Phan, J.

Aug. 10, 2002

  
James Phan  
Primary Examiner